

PCT09

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/701,747

DATE: 09/05/2001
TIME: 10:38:41

Input Set : A:\620-123.app
Output Set: N:\CRF3\09052001\I701747.raw

4 <110> APPLICANT: Wood, John N
5 England, Steven
6 Chen, Chih C
7 Akopian, Armen N
9 <120> TITLE OF INVENTION: Ion channels
11 <130> FILE REFERENCE: 620-123
13 <140> CURRENT APPLICATION NUMBER: US 09/701,747
C--> 14 <141> CURRENT FILING DATE: 2001-01-29
16 <150> PRIOR APPLICATION NUMBER: PCT/GB99/01743
17 <151> PRIOR FILING DATE: 1999-06-03
19 <150> PRIOR APPLICATION NUMBER: GB 9811965.4
20 <151> PRIOR FILING DATE: 1998-06-03
22 <160> NUMBER OF SEQ ID NOS: 13
24 <170> SOFTWARE: PatentIn Ver. 2.1
26 <210> SEQ ID NO: 1
27 <211> LENGTH: 2622
28 <212> TYPE: DNA
29 <213> ORGANISM: Rattus norvegicus
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33 <222> LOCATION: 2139, 2203, 2253, 2313, 2316, 2428, 2482, 2516, 2532
34 <223> OTHER INFORMATION: n is unknown
36 <220> FEATURE:
37 <221> NAME/KEY: misc_feature
38 <222> LOCATION: 2546, 2563, 2584, 2594
39 <223> OTHER INFORMATION: n is unknown
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44 gggagtgacg cccccacctc gggccccac cctgtcccca tcctcctcct ggttgccctg 180
45 agtttagaag agcagccgct gccaccacca ccaactccga gggcaccagg gctgctgtcc 240
46 agggaaggac agtagcagtg aggctctggc cagtcccagc agccggggac agatgccgat 300
47 cgagattgtg tgcaaaatca aatttgctga ggaggatgca aaaccaagg agaaggaggc 360
48 aggggatgag cagagcctcc tgggggctgc tcaggggcca gcagcccctc gggacctggc 420
49 tacctttgcc agcaccagta ctctgcatgg gctgggcccgg gcctgtggcc caggccccca 480
50 tggactgcgc agaaccctgt gggactggc cctactcacc tcaactggctg ccttctgta 540
51 ccaggcagcc agcctggcca ggggctacct gacccggcct cacctggtag ccatggacc 600
52 tgctgcccc accccagtg cggtcttcc ggctgtcacc ctctgcaaca tcaaccgctt 660
53 ccggcattcg gcaactcagc atgctgatat cttccacctg gccaatctga cagggtgctg 720
54 ccccaaagac cgggatgggc accgtgcagc tggccttcgc taccagagc ctgacatggt 780
55 agacatcctc aaccgcaactg gccaccagct tgctgacatg ctcaagagct gcaacttcag 840
56 tgggcaccac tgctccgcca gcaacttctc tgtggtctat actcgctatg gaaagtgtta 900
57 caccttcaat gcagatcctc agagttcact gccagcagg gcaggcggca tgggtagtgg 960
58 cctggagatc atgctagaca tccagcagga ggaataccta cccatatgga gggagacaaa 1020
59 tgagacatca ttcgaggcag ggatccgggt gcagatccac agccaggagg agcctcccta 1080
60 catccaccag ctgggggttcg gtgtgtcccc aggcttccag acttttgtgt cctgccagga 1140
61 acagcggcta acttatctgc cccagccttg gggcaactgc cgggcggaaa gcaagctcag 1200

ENTERED

P.5

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62 ggagcctgag cttcagggct actcagccta tagtgtgtct gcctgccgac tgcgctgtga 1260
63 gaaggaggcc gtgcttcagc gctgccactg ccggatggtg cacatgccag gcaatgagac 1320
64 catctgcccg ccaaatatct acattgaatg tgccgaccac aactggact ccctgggtgg 1380
65 gggctctgag ggcccatgct tctgccctac accctgcaac ctgactcgtt acggcaaaga 1440
66 gatctccatg gtcaagatcc ccaacagggg ctctgccagg tacctggcga ggaagtacaa 1500
67 ccgcaatgag acctacataa gggaaaactt cttggtcctg gatgtcttct ttgaggccct 1560
68 aacctctgaa gccatggaac agcgagctgc ctatggtctg tcagccttgc tgggggacct 1620
69 tgggggacag atgggcctgt tcattggggc tagcatectc accttgctgg agatccttga 1680
70 ctacatctat gaggtctcct gggatcgact caagaggggtg tggcgacggc ccaagacccc 1740
71 acttaggacg tccactgggg gcatctccac tttggggctg caggaactga aggaacagag 1800
72 tccctgtcca aatcgaggcc gtgctgaggg tgggtggggct agcaacctgc ttcccaacca 1860
73 tcaccacccc cacggccccc caggaagcct ctttgaaaac tttgcttgct aggatggtgc 1920
74 tgtgtgggga aagtacccat gaaaccccac actctcctat tcttgggaca gaaggtctgg 1980
75 ggagagccag ggctaaggga aggggtggtg ctactgaaa ggccaggact agggctcctgc 2040
76 tctccctgac ctaggctcag ctgccttgca caagaatcct tcttgtccat actccctgct 2100
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81 ttgggtggt tctacttccc tctttccagg ccagctccc tcttggcatg gggagtgggt 2400
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W-->85 atcnagagac cccnagaaaa aaaaaaaaaa aaaaaaaaaa aa 2622
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89 <211> LENGTH: 539
90 <212> TYPE: PRT
91 <213> ORGANISM: Rattus norvegicus
93 <400> SEQUENCE: 2
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97 Lys Pro Lys Glu Lys Glu Ala Gly Asp Glu Gln Ser Leu Leu Gly Ala
98 20 25 30
100 Ala Gln Gly Pro Ala Ala Pro Arg Asp Leu Ala Thr Phe Ala Ser Thr
101 35 40 45
103 Ser Thr Leu His Gly Leu Gly Arg Ala Cys Gly Pro Gly Pro His Gly
104 50 55 60
106 Leu Arg Arg Thr Leu Trp Val Leu Ala Leu Leu Thr Ser Leu Ala Ala
107 65 70 75 80
109 Phe Leu Tyr Gln Ala Ala Ser Leu Ala Arg Gly Tyr Leu Thr Arg Pro
110 85 90 95
112 His Leu Val Ala Met Asp Pro Ala Ala Pro Ala Pro Val Ala Gly Phe
113 100 105 110
115 Pro Ala Val Thr Leu Cys Asn Ile Asn Arg Phe Arg His Ser Ala Leu
116 115 120 125
118 Ser Asp Ala Asp Ile Phe His Leu Ala Asn Leu Thr Gly Leu Pro Pro
119 130 135 140
121 Lys Asp Arg Asp Gly His Arg Ala Ala Gly Leu Arg Tyr Pro Glu Pro
122 145 150 155 160

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Input Set : A:\620-123.app
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124 Asp Met Val Asp Ile Leu Asn Arg Thr Gly His Gln Leu Ala Asp Met
 125 165 170 175
 127 Leu Lys Ser Cys Asn Phe Ser Gly His His Cys Ser Ala Ser Asn Phe
 128 180 185 190
 130 Ser Val Val Tyr Thr Arg Tyr Gly Lys Cys Tyr Thr Phe Asn Ala Asp
 131 195 200 205
 133 Pro Gln Ser Ser Leu Pro Ser Arg Ala Gly Gly Met Gly Ser Gly Leu
 134 210 215 220
 136 Glu Ile Met Leu Asp Ile Gln Gln Glu Glu Tyr Leu Pro Ile Trp Arg
 137 225 230 235 240
 139 Glu Thr Asn Glu Thr Ser Phe Glu Ala Gly Ile Arg Val Gln Ile His
 140 245 250 255
 142 Ser Gln Glu Glu Pro Pro Tyr Ile His Gln Leu Gly Phe Gly Val Ser
 143 260 265 270
 145 Pro Gly Phe Gln Thr Phe Val Ser Cys Gln Glu Gln Arg Leu Thr Tyr
 146 275 280 285
 148 Leu Pro Gln Pro Trp Gly Asn Cys Arg Ala Glu Ser Lys Leu Arg Glu
 149 290 295 300
 151 Pro Glu Leu Gln Gly Tyr Ser Ala Tyr Ser Val Ser Ala Cys Arg Leu
 152 305 310 315 320
 154 Arg Cys Glu Lys Glu Ala Val Leu Gln Arg Cys His Cys Arg Met Val
 155 325 330 335
 157 His Met Pro Gly Asn Glu Thr Ile Cys Pro Pro Asn Ile Tyr Ile Glu
 158 340 345 350
 160 Cys Ala Asp His Thr Leu Asp Ser Leu Gly Gly Gly Ser Glu Gly Pro
 161 355 360 365
 163 Cys Phe Cys Pro Thr Pro Cys Asn Leu Thr Arg Tyr Gly Lys Glu Ile
 164 370 375 380
 166 Ser Met Val Lys Ile Pro Asn Arg Gly Ser Ala Arg Tyr Leu Ala Arg
 167 385 390 395 400
 169 Lys Tyr Asn Arg Asn Glu Thr Tyr Ile Arg Glu Asn Phe Leu Val Leu
 170 405 410 415
 172 Asp Val Phe Phe Glu Ala Leu Thr Ser Glu Ala Met Glu Gln Arg Ala
 173 420 425 430
 175 Ala Tyr Gly Leu Ser Ala Leu Leu Gly Asp Leu Gly Gly Gln Met Gly
 176 435 440 445
 178 Leu Phe Ile Gly Ala Ser Ile Leu Thr Leu Leu Glu Ile Leu Asp Tyr
 179 450 455 460
 181 Ile Tyr Glu Val Ser Trp Asp Arg Leu Lys Arg Val Trp Arg Arg Pro
 182 465 470 475 480
 184 Lys Thr Pro Leu Arg Thr Ser Thr Gly Gly Ile Ser Thr Leu Gly Leu
 185 485 490 495
 187 Gln Glu Leu Lys Glu Gln Ser Pro Cys Pro Asn Arg Gly Arg Ala Glu
 188 500 505 510
 190 Gly Gly Gly Ala Ser Asn Leu Leu Pro Asn His His His Pro His Gly
 191 515 520 525
 193 Pro Pro Gly Ser Leu Phe Glu Asn Phe Ala Cys
 194 530 535
 198 <210> SEQ ID NO: 3

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199 <211> LENGTH: 526
 200 <212> TYPE: PRT
 201 <213> ORGANISM: Rattus norvegicus
 203 <400> SEQUENCE: 3
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 208 20 25 30
 210 Ile Phe Ser Tyr Glu Arg Leu Ser Leu Lys Arg Ala Leu Trp Ala Leu
 211 35 40 45
 213 Cys Phe Leu Gly Ser Leu Ala Val Leu Leu Cys Val Cys Thr Glu Arg
 214 50 55 60
 216 Val Gln Tyr Tyr Phe Cys Tyr His His Val Thr Lys Leu Asp Glu Val
 217 65 70 75 80
 219 Ala Ala Ser Gln Leu Thr Phe Pro Ala Val Thr Leu Cys Asn Leu Asn
 220 85 90 95
 222 Glu Phe Arg Phe Ser Gln Val Ser Lys Asn Asp Leu Tyr His Ala Gly
 223 100 105 110
 225 Glu Leu Leu Ala Leu Leu Asn Asn Arg Tyr Glu Ile Pro Asp Thr Gln
 226 115 120 125
 228 Met Ala Asp Glu Lys Gln Leu Glu Ile Leu Gln Asp Lys Ala Asn Phe
 229 130 135 140
 231 Arg Ser Phe Lys Pro Lys Pro Phe Asn Met Arg Glu Phe Tyr Asp Arg
 232 145 150 155 160
 234 Ala Gly His Asp Ile Arg Asp Met Leu Leu Ser Cys His Phe Arg Gly
 235 165 170 175
 237 Glu Ala Cys Ser Ala Glu Asp Phe Lys Val Val Phe Thr Arg Tyr Gly
 238 180 185 190
 240 Lys Cys Tyr Thr Phe Asn Ser Gly Gln Asp Gly Arg Pro Arg Leu Lys
 241 195 200 205
 243 Thr Met Lys Gly Gly Thr Gly Asn Gly Leu Glu Ile Met Leu Asp Ile
 244 210 215 220
 246 Gln Gln Asp Glu Tyr Leu Pro Val Trp Gly Glu Thr Asp Glu Thr Ser
 247 225 230 235 240
 249 Phe Glu Ala Gly Ile Lys Val Gln Ile His Ser Gln Asp Glu Pro Pro
 250 245 250 255
 252 Phe Ile Asp Gln Leu Gly Phe Gly Val Ala Pro Gly Phe Gln Thr Phe
 253 260 265 270
 255 Val Ser Cys Gln Glu Gln Arg Leu Ile Tyr Leu Pro Ser Pro Trp Gly
 256 275 280 285
 258 Thr Cys Asn Ala Val Thr Met Asp Ser Asp Phe Phe Asp Ser Tyr Ser
 259 290 295 300
 261 Ile Thr Ala Cys Arg Ile Asp Cys Glu Thr Arg Tyr Leu Val Glu Asn
 262 305 310 315 320
 264 Cys Asn Cys Arg Met Val His Met Pro Gly Asp Ala Pro Tyr Cys Thr
 265 325 330 335
 267 Pro Glu Gln Tyr Lys Glu Cys Ala Asp Pro Ala Leu Asp Phe Leu Val
 268 340 345 350
 270 Glu Lys Asp Gln Glu Tyr Cys Val Cys Glu Met Pro Cys Asn Leu Thr

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271 355 360 365
273 Arg Tyr Gly Lys Glu Leu Ser Met Val Lys Ile Pro Ser Lys Ala Ser
274 370 375 380
276 Ala Lys Tyr Leu Ala Lys Lys Phe Asn Lys Ser Glu Gln Tyr Ile Gly
277 385 390 395 400
279 Glu Asn Ile Leu Val Leu Asp Ile Phe Phe Glu Val Leu Asn Tyr Glu
280 405 410 415
282 Thr Ile Glu Gln Lys Lys Ala Tyr Glu Ile Ala Gly Leu Leu Gly Asp
283 420 425 430
285 Ile Gly Gly Gln Met Gly Leu Phe Ile Gly Ala Ser Ile Leu Thr Val
286 435 440 445
288 Leu Glu Leu Phe Asp Tyr Ala Tyr Glu Val Ile Lys His Arg Leu Cys
289 450 455 460
291 Arg Arg Gly Lys Cys Gln Lys Glu Ala Lys Arg Ser Ser Ala Asp Lys
292 465 470 475 480
294 Gly Val Ala Leu Ser Leu Asp Asp Val Lys Arg His Asn Pro Cys Glu
295 485 490 495
297 Ser Leu Arg Gly His Pro Ala Gly Met Thr Tyr Ala Ala Asn Ile Leu
298 500 505 510
300 Pro His His Pro Ala Arg Gly Thr Phe Glu Asp Phe Thr Cys
301 515 520 525
305 <210> SEQ ID NO: 4
306 <211> LENGTH: 26
307 <212> TYPE: DNA
308 <213> ORGANISM: Rattus norvegicus
310 <400> SEQUENCE: 4 26
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314 <210> SEQ ID NO: 5
315 <211> LENGTH: 25
316 <212> TYPE: DNA
317 <213> ORGANISM: Rattus norvegicus
319 <400> SEQUENCE: 5 25
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323 <210> SEQ ID NO: 6
324 <211> LENGTH: 25
325 <212> TYPE: DNA
326 <213> ORGANISM: Rattus norvegicus
328 <400> SEQUENCE: 6 25
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332 <210> SEQ ID NO: 7
333 <211> LENGTH: 25
334 <212> TYPE: DNA
335 <213> ORGANISM: Rattus norvegicus
337 <400> SEQUENCE: 7 25
338 atatgggtag gtattcctcc tgctg
341 <210> SEQ ID NO: 8
342 <211> LENGTH: 24
343 <212> TYPE: DNA
344 <213> ORGANISM: Rattus norvegicus

Use of n and / or Xaa has been detected in the
Sequence Listing. Review the Sequence Listing
to ensure a corresponding explanation is present
in the <220> to <223> fields of each sequence
using n or Xaa.

VERIFICATION SUMMARY

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Input Set : A:\620-123.app

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L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:77 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:78 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:79 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:80 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:82 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:83 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:84 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:85 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:352 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8
L:366 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:385 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10
L:401 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11

0901747.012901